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ABSTRACT

A few of the relationships between visual and verbal components are explored. Visuals are considered to be things that can be seen, visible things other than printed words that are used in a communication process. The term verbal applies to written or spoken words. The natural tendency for visual and verbal components to be mutually supportive has been called visual-verbal symbiosis. When the natural relationship is destroyed, the result is visual-verbal discontinuity. This paper concentrates on the symbiotic relationships. Visuals and verbals can be combined in any ratio, and the ratio offers a way of establishing a typology of visual and verbal relationships. Of the many media combinations that bring the visual and verbal together, the most common are the printed page and the video screen. The following are four aspects of visible language (print): (1) typography; (2) typographical cuing; (3) printing conventions; and (4) format and layout. The outline graphic is a particularly powerful form of visible language. Only a few of the relationships between visual and verbal components are explored. These, however, illustrate that ideas can be delivered with greater impact when visual and verbal components are mutually supportive. Six figures illustrate the discussion. (Contains 24 references.) (SLD)

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Examining Visual Verbal Relationships

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by
Roberts A. Braden

Definitions:

The word "visualize" is a verb. Its noun form is "visualization." The root word "visual" is listed in the dictionary as an adjective, but not as a noun. Thus adjectivally we speak of the visual properties of objects, visual metaphors, visual skills, visual flight rules, and, yes, of visual language and visual literacy. Thus while visual is not listed as a noun, common usage will soon change that.

In education and the visual arts we now speak of visuals when we mean visual aids, or when referring to images of many kinds that are used to communicate. As a pseudo-noun visual is somewhat synonymous with image, picture, and illustration. In fact, the word visual has been used as a noun substitute for chart, graph, diagram, painting, and sketch.

For the purpose of this discussion, let us consider visuals to be *things that can be seen, things viewable, visible things other than printed words that are used in a communication process.* Clearly, the sense of sight is central to the concept of a visual.

Like visualize, "verbalize" is a verb. The adjectival form is "verbal", and "verbalization" is the comparable noun with regard to the preceding discussion. No pseudo-noun usage of the term verbal is common, however, so a complete analogy between the terms cannot be constructed. Thus, to facilitate discussion the term verbal will be used hereafter not only as an adjective, but also as a noun, meaning verbal elements of any kind.

Unlike "visualize", the term "verbalize" is most often associated with the acts of speaking and listening, and therefore is most closely related to the sense of hearing. But it is language, not the sense of hearing, that is central to verbal things. The operational definition must be extended so that *verbal applies to written or spoken words, linked to either or both of the senses of hearing and sight.*

Jack Debes, the father of the visual literacy movement, and others (e.g., Pettersson, 1989) have referred to *visual language*. At the extreme, a visual language would imply a stand-alone grammar and a vocabulary of images, symbols and icons that are independent of the spoken and written language in general use.

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After a luncheon speech given by Debes in which he extolled the notion of visual language, he was asked to give an example of a truly visual language. He responded that American sign language was a highly developed visual language, but conceded that it really was only a different way to "write" (with gestures) the English language. Pressed further he identified the captionless cartoon (he named the now extinct comic strip *Henry)* as an example of the use of visual language.

Pettersson says, "Symbols and pictures could be referred to as 'visual languages'." and he notes that "Paintings, drawings and other objects of art often stand alone." (1989, pp. 202-3). Mostly, however, Pettersson deals with visual language only as a theoretical concept. He plugs visual language into a theoretical model in which three kinds of language -- verbal, audial, and visual -- are found in combinations.

Consequently, Petterson's model results in the coining of new terms: **audio-verbal** refers to combinations of verbal language and audial language; **verbo-visual, oral-visual, and lexi-visual** all refer to combinations of verbal language and visual language; **audio-visual** represents the combination of audial language and visual language; and the combination of all three kinds of language is designated as **verbo-audio-visual.** For practical everyday use, Pettersson simplifies his theory thusly, "Based on how the *verbal information* is presented to the receivers we can distinguish between two forms of verbo-visual information. We *read* text in **lexi-visual** representations and we *listen* to speech in **audio-visual** representations..." (Petterson, 1989, p.204)

Visual Verbal Relationships in General

The above definitions of visual, verbal and related terms may be subject to dispute. Shades of meaning exist. However, those definitions are offered here because our purpose is not to quibble about shades of meaning, but rather to be clear about the meanings denoted as we examine the relationships between the visual and the verbal. Sometimes those relationships are strong. Sometimes weak. In general, though, we can summarize all of the relationships between visual images and verbal elements with the conclusion that images complement words and vice versa.

That natural tendency for visual and verbal components to be mutually supportive has been called *visual-verbal symbiosis* (Braden, 1983). When an image is mislabeled or words are not correctly illustrated or when there is any other instance of showing one thing while saying another, the natural relationship is destroyed and the result is *visual-verbal discontinuity*. The purpose of this paper is to concentrate more on the symbiotic relationships than the discontinuitous ones.

Types of Visuals:

Visuals are categorized in several ways. They can be categorized by size: small, medium, and large. Or, they can be classified according to the end purpose: educational, promotional, entertainment, art. Or, visuals can be grouped according to the roles that they play relevant to text. Or, visuals can be sorted according to content. Visual literacy enthusiasts have found these and other classification systems useful.

Still another useful categorization scheme is one that groups visuals by outstanding characteristics of the visuals themselves. For instance, the terms static, dynamic, and personal may be assigned as categorizing rubrics.

- **Static visuals** include pictures and other printed or projected images
- **Dynamic visuals** include animation, video, and film
    - **Personal visuals**, a subset of dynamic visuals, include pantomime, sign language, body language, and gestures

Following the same line of reasoning verbal elements can be categorized into one of two major classes, static or dynamic.

- **Written (Static) verbal elements** include words (text) in all of their forms, printed or projected. When numerals and other mathematical symbols are used as language they are included in this category.
- **Spoken (Dynamic) verbal elements** include the spoken language in audible form and visible forms of text that are metamorphosed or animated.

To create a useful matrix which displays the interactions of germane variables we need to ask which factors are known to support which others and to record how that support might be provided. In that context, the following matrix (fig.1.) is offered which is more a description of the possible interactions than a set of ultimate examples.

The simplicity of Figure 1 is its greatest weakness. Obviously the cells are filled with only a few of the many examples that might have been chosen. More critically, the categories are so broad that only the broadest generalizations could be made. What about the degree of realism in visuals (see Knowlton, 1966; Levie, 1978; Levie and Lentz, 1982; Dwyer, 1968, 1978 and later), the degree of visualization versus the degree of verbalization (Wileman 1980, 1993, Braden & Beauchamp, 1987), and the characteristics of the particular visual genre, e.g., outline graphics (see Braden, 1982)?

Degree of Realism:

The most extensive research that has been done in the field of visual literacy has been the twenty-odd year series of experiments conducted by Francis Dwyer and his associates known as the Program of Systematic Evaluation (PSE). In one way or another most of the PSE experiments have been related to a set of visuals that depict the human heart. The illustrations range from realistic color photographs of a real heart to sketchy black and white line drawings. They span the spectrum of reality which can be displayed in printed images. Many of the experiments sought data on the effects of these images as they interact with verbal components such as labeling, parallel printed text, and oral commentary.

Degree of Visualization v. Degree of Verbalization:

Comic books are mostly picture stories with the dialogue of the principals lettered into speech balloons. Text books are mostly written sources of information with appropriate pictorial and graphic materials scattered around. The possibilities are endless as far as the ratio goes of visual to verbal material present in a book or magazine. For the most part, the role or purpose of the publication determines the ratio. The

Static Visuals	n/a	Rare. Use of video as a guide to an art museum.	Yes. Slide + Tape. Mediated lecture. Show and tell.	Yes. Story boards. Figures and pictures in newspapers. Magazine ads.
Dynamic Visuals	Yes. As objects shown in the dynamic medium, e.g., a chart in use in a filmed lecture.	n/a	Yes. The commentary which accompanies the pictures on the evening news.	Yes. Superimposed explanations on TV, e.g., the names of speakers on interview shows. "Crawl" messages at the bottom of the screen.
Spoken Verbals	Yes. Diagrams used in a chalk talk. Slides shown during a lecture. Charts used during a briefing.	Yes. The pictures which accompany the commentary on the evening news.	n/a	Yes. Handouts at a speech, lecture, or meeting.
Written Verbals	Yes. All kinds of images in books and journals which illustrate the subject of the text.	Unusual. A video or film of a story being taught as a book in a literature course.	Yes. A lecture which explicates a printed handout. Any speech which explains printed information.	n/a
Supported by →	**Static Visuals**	**Dynamic Visuals**	**Spoken Verbals**	**Written Verbals**

Figure 1. Matrix of support relationships with selected examples.

final ratio is determined as an editorial decision. You are looking at an example of how the purpose drives that editorial decision. Rational thought would lead us to expect that the editorial decision regarding *this textbook* would be to have a relatively high ratio of visual material to the verbal content. Would the same decision be made if this were not a book about *visual* things? Probably not.

Visuals and verbals can be combined in any ratio -- lots of one, lots of the other, or lots of both. An interesting (and challenging) set of possibilities occurs when the ratio involves visual and verbal elements displayed together in one medium. Posters, printed ads, billboards, computer graphics, and TV commercials are but a few of the examples we encounter daily wherein visual and verbal elements are displayed concurrently.

Ralph Wileman has created a typology of verbal and visual image relationships. In his earlier work (Wileman. 1980) he called his seven image types "slides." Thus at one end of his spectrum were what he called reader slides which were basically images of words -- purely verbal. At the other extreme were pictorial or graphic symbol slides which were devoid of any typographical enhancement -- purely visual. In his most recent version of the typology (Wileman, 1993), he uses the term "frame", reflecting the fact that slide-lectures and slide+tape presentations are giving way in popularity to lectures illustrated with computer graphics and other forms of computer driven presentations (fig. 2).

Type I:
READER frame (pure verbal)

Type II:
EMPHASIZED READER frame

Type III:
Reader frame with VISUAL CUES to meaning

Type IV:
Verbal/Visual BALANCED frame

Type V:
Pictorial or Graphic Symbol frame with VERBAL CUES to meaning

Type VI:
EMPHASIZED PICTORIAL or GRAPHICS Symbol frame

Type VII:
PICTORIAL or GRAPHIC Symbol frame (pure visual)

Figure 2. Wileman's Typology

Figure 2 is a listing of the types of frame that Wileman includes in his continuum. The bold lettering and capitalization cues in the text of the figure represent Wileman's (1993) own emphases.

What Wileman has done is to identify the extremes, the middle (visual/verbal balanced frame) and then created arbitrary categories representing other degrees of dominance of either the visual or verbal component. His examples are appropriate, and the result is an extremely useful theoretical model.

Braden and Beauchamp (1987) approached the categorization task from an audio-visual perspective. The particular medium they chose to exemplify their theory was the slide+tape. Consequently, they established two continua: one for what is seen, the other for what is heard. In contrast, Wileman's typology considers only what is seen. The four extremes of the two variables in Beauchamp and Braden's model are displayed as a 2X2 matrix in Figure 3 on the next page. The matrix could, of course, have been expanded to show all seven of Wileman's types of slides (frames) and a comparable number of types of sound ranging from completely non-verbal to completely verbal. However, the resulting chart would have contained forty-nine cells and would have been much more difficult to comprehend.

The typical slide+tape program contains a mixture of slide types and a mixture of sound variations. As a result, it is clear that an infinite number of possible combinations exist, and the relationship of visual to verbal elements in any given program is

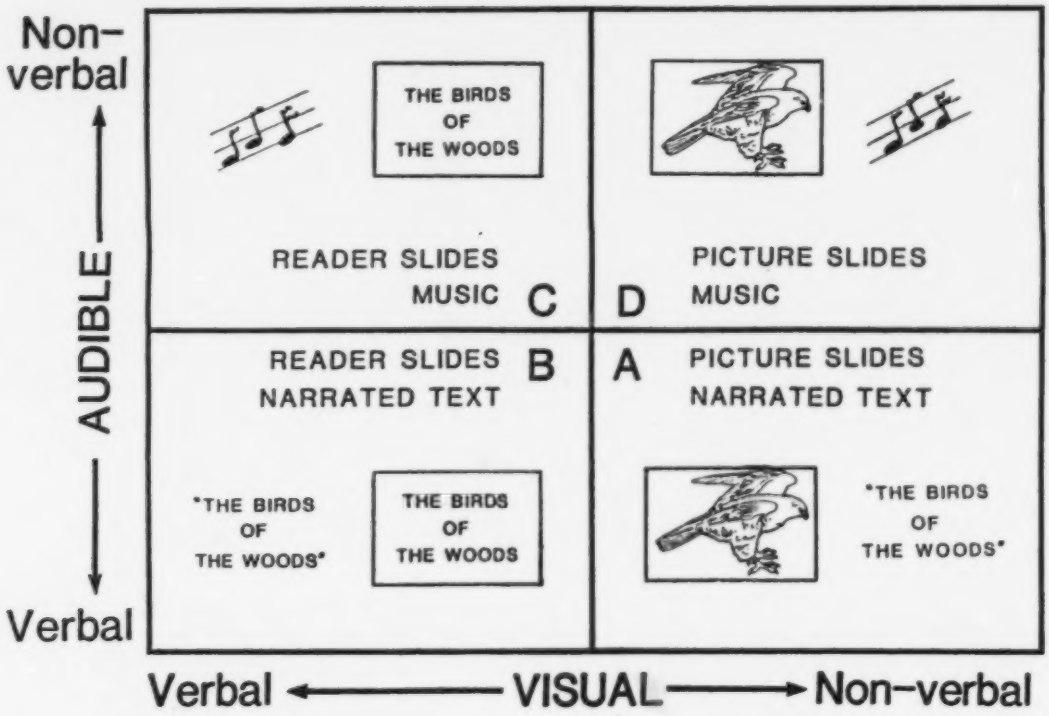

Figure 3. Beauchamp & Braden's 2X2 Visual-Verbal Matrix

determined in large part by the purpose of the program and the preferences of the designer.

The Role of the Visual:

Duchastel (1978) pointed out three roles of illustrations in text: the *attention role*, the *explicative role*, and the *retention role*. In order, the first role or purpose is to attract or motivate, the second to explain (show) that which is difficult or impossible to describe, and the last is meant simply to be memorable.

All of Duchastel's three roles can be applied to the uses of text in learning, but they are equally appropriate to the field of advertising, to business communications, and other textual applications. In essence the role of the visual is a projection of the intent or purpose of its creator. That being the case, let us simplify to a single role, i.e., that *illustrations in text are usually there to support the text* (and the text carries the author's message and agenda -- whatever it may be.) The rare exceptions are art books and specialized pictorial books where the role of the visuals is to *be* the message and to carry the author's agenda.

Duchastel and Waller (1979) indicated that we need "...a set of principles which relates illustrations to the potential **effects** they may have on the reader or learner." Wiley's Hierarchy of Visual Learning contends that

the **effect** of visuals upon verbal information is a function of the visual maturity of the viewer (Bertoline, Burton & Wiley, 1992).

The Printed Word

Of the many media combinations which bring visual material together with verbal elements, by far the two most influential and widely utilized are the printed page and the video screen. Of the two, the printed pages remains the clear leader in terms of the amount of visual-verbal information disseminated. Print remains, therefore, of central concern to students of visual-verbal relationships.

Several major books have been written recently on the topic of text, and each devotes extensive coverage to the visual aspect of displaying text (Jonasssen, 1982, 1985; Hartley, 1985; Gropper, 1991). "Text," of course, refers to **words** displayed in any of several printed forms, including books, magazines, newspapers, letters, pamphlets, and so forth.

A few books have also been published recently that deal specifically with displaying **visuals** in print. Commendable amongst the latter group are the books of Pettersson (1989), Tufte (1990), Willows & Houghton / Houghton & Willows (both 1987). These books deal directly with the visual-verbal relationship. The books in the "text" category are all concerned with **visible language** itself, i.e., all of the visual aspects of written language.

Visible Language is defined here as any written or printed example of a verbal language -- in any visible form. Today we have viewable electronic and projected displays of verbal language in addition to books, newspapers and the like. As we think about the relationships of the visual to the verbal, there are four aspects of visible language that immediately come to mind. They are: typography, typographical cuing, printing conventions, and format & layout (page design).

Typography is concerned with the design, appearance, and use of typefaces--that is, the size, shape and placement of letters on the printed page. It is concerned with how letters fit side-by-side (kerning), with line and word spacing, with fonts and more. In short, there is an entire profession out there which is devoted to the visual aspects of letters and printed words. Typography is part of *visible language*.

Typographical cuing consists of a variety of visual techniques which are used in printing to direct the attention of the reader. Visual impact is gained through the use of capitalization, font size, underlining, italics, boldness of letters, lines, rules, arrows, bullets, and even of the use of white space on the page or screen.

Printing conventions are the "rules" which govern letter placement and other visual considerations during printing. When cuing is artfully combined with printing conventions, the visual aspect of typography may take on near-equal status with the verbal component. We take these conventions for granted until we see them violated. Consider the following block of text:

SeLeCtEdPrInTiNgCoNvEnTi
OnSHeAdInGsSkIpTwOlInEsP
rIoRsKiPoNeLiNeAfTeRsEtOf
FwItHcUInGwOrDsPaCeBeFo
ReAnDaFtErInItIaLcApItAlIzA

tIoNfOrPrOpErNoUnSpHrAsE
bIuNdArYpUnCtUaTiOnExTr
AsPaCe*SeNtEnCeBoUnDaRy
InItIaLcApItAlIzAtIoNfInAlPu
NcTuAtIoNmArKsExTrAsPaC
e*PaRaGrApHiNdEnTaTiOnSk
IpAlInE*bOlDfAcEiNiTiAlCh
ArAcTeReNlArGeDeTceNdOf
LiNeRiGhTaNdLeFtJuStIfIeDh
YpHeNInDiCaTeSwOrDdIvIsI
oN*iNbOoKsUsUaLlYnObEcO
nSiStEnT

The information in that string of letters can be made much more readable if we observe only three printing conventions--those of capitalization, punctuation, and word spacing. (See the next example.) While we may still experience difficulty deriving clear meaning from this block of text as a whole, at least we can easily read the words and phrases.

SELECTED PRINTING CONVENTIONS Headings Skip two lines prior Skip One line after Set off with cuing Word Space before and after Initial capitalization for proper nouns Phrase boundary Punctuation Extra space* Sentence boundary Initial capitalization Final punctuation marks Extra space* Paragraph Indentation Skip a line* Bold face, initial character enlarged, etc.End of line Right and left justified Hyphen indicates word division *In books, usually no. Be consistent.

The string of letters makes more sense as a string of words, but even more meaning is possible when the words are powerfully displayed. For example, you can add visual cuing and arrange the words into a display format to create an all-verbal figure that draws much of its strength and meaning from the layout, the fonts, the bullets, or other sight cues. Figure 4 illustrates how one might display the information in our example at hand. Any number of equally effective or more effective layouts are possible.

SELECTED PRINTING CONVENTIONS

Headings
- Skip two lines prior
- Skip one line after
- Set off with cuing

WORD
- Space before and after
- Initial capitalization for proper nouns

PHRASE BOUNDARY
- Punctuation
- Extra space *

SENTENCE BOUNDARY
- Initial capitalization
- Final punctuation marks
- Extra space *

PARAGRAPH
- Indentation
- Skip a line *
- Two or more sentences

END OF LINE
- Right and left justified
- Hyphen indicates word division

* In books, usually no. Be consistent.

Figure 4. Example of visualized display of printing conventions (see Braden, 1982; Haber & Haber, 1981; and Lenze, 1992)

An obvious attribute of figure 4 is the hierarchical structure of the content. Because the information is outlined, it can be abbreviated and displayed as

shown. The outline graphic is a particularly powerful form of visible language.

Outline Graphics:

An outline graphic (OG) is any outline done in any graphic form (Braden, 1982). Outline graphics are worthy of special consideration in the discussion of the relationships of visuals to verbals. To begin with, the outline in any of its forms is essentially verbal. A graphic is essentially visual. The OG retains all of the content features of the simple textual outline and enhances them by embellishing the way in which they are displayed. The essential characteristics of OGs are that they are **skeletal, orderly, holistic,** and have a **visual** component [see figures 5 & 6].

These two examples of outline graphics are designed to illustrate how the same content may be graphically presented in various ways. Figure 5 is dominantly verbal. The only distinguishing visual enhancements are the box in which the words appear, the use of more than one type size, typographic bullets, and indenting. The same words appear in figure 6, but the visible hierarchical arrangement of figure 5 has given way to a networked display with a focus upon one central concept.

Conclusion

Only a few of the many relationships of visual components to verbal ones have been explored in this paper. The examples given, were chosen to illustrate that ideas can be delivered with greater impact when the visual and verbal components are mutually supportive. Even left-brained verbal thought can be enhanced with right-brained visual structure. Even right-brained art can be enhanced by strong verbal description.

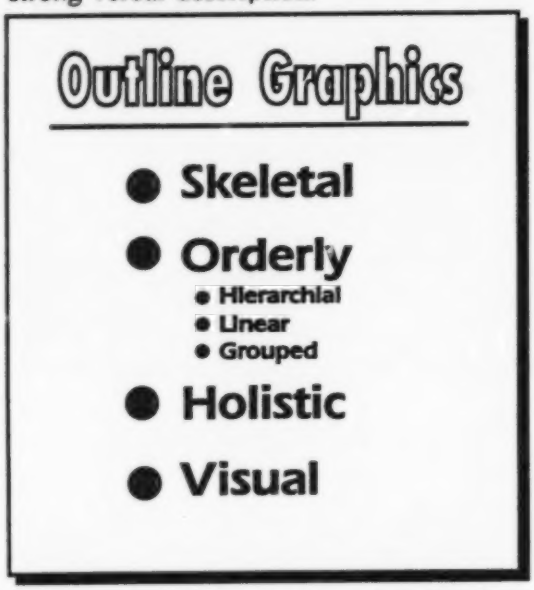

Figure 5. Minimal Outline Graphic

Figure 6. Outline Graphic with holistic emphasis.

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An expanded version of this paper is forthcoming from Educational Technology Publications in a textbook edited by D.M Moore and F.M. Dwyer.